

A New Species of *Croomia* (*Stemonaceae*) from Shikoku, Western Japan

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A new species of *Croomia* (*Stemonaceae*), *C. kinoshitae* Kadota, is here described from Shikoku, western Japan. *Croomia kinoshitae* differs from *C. heterosepala* (Baker) Okuyama in having monomorphic, shortly cuspidate tepals, yellowish-green, thinner, slightly incurved staminal filaments and irregularly serrulate leaves. *Croomia kinoshitae* is the sixth species in the genus and is distributed throughout Shikoku. A key for the species of the genus *Croomia* is also provided.

Key words: *Croomia heterosepala*, *Croomia kinoshitae*, new species, Shikoku, *Stemonaceae*.

In October 2010 two species of *Croomia* (*C. hyugaensis* and *C. saitoana*; *Stemonaceae*) from Miyazaki Prefecture, Kyushu, southern Japan, were published as new species (Kadota 2010). In November of the same year Mr. Satoru Kinoshita, Naruto-shi, Tokushima Prefecture, sent specimens and images of *Croomia* plants from the prefecture, Shikoku, western Japan, and asked me the taxonomic status of the plants. Based on my observation it was clear that the plants are similar to *C. heterosepala* (Baker) Okuyama in having large, yellowish-green tepals (perianth-segments) but are different from it by monomorphic tepals. Later examination in the Herbarium (TNS) also revealed that such plants are distributed in Shikoku. I asked Dr. Nobuyuki Tanaka, Kochi Prefectural Botanical Garden, to gather information on the plant at issue in Kochi Prefecture.

In May 2011 Dr. Tanaka did field research for *Croomia* plants in the prefecture and kindly sent dried and immersed specimens and images

of *Croomia* plants to me. After examination it turned out that they are identical with the Tokushima plants. Subsequently I executed field studies in Mt. Yokogura-yama and Mt. Kuishi-yama, Kochi Prefecture, and could observe the *Croomia* plants at issue in June 2011. A detailed examination of the materials revealed that the plants represent an undescribed species. This new species is described here as *Croomia kinoshitae*, which is dedicated to Mr. S. Kinoshita, the finder of this species.

Taxonomic treatment

Croomia kinoshitae Kadota, sp. nov.

[Figs. 1–2]

Croomia heterosepala auct. non (Baker) Okuyama: N. Tanaka, Fl. Kochi: 542 (2009), p.p.

Ab *Croomiae heterosepala*, tepalis monomorphis breviter cuspidatis, filamentis staminum flavovirentibus tenuioribus leviter incurvatis, foliis irregulariter serrulatis differt.



Fig. 1. Type of *Croomia kinoshitae* Kadota (JAPAN. Shikoku. Tokushima Pref., Miyoshi-shi, Yamashiro-cho, Mt. Kurotaki-yama, alt. 500 m, 7 July 2010, S. Kinoshita 17067, TNS 1113234, holotype).

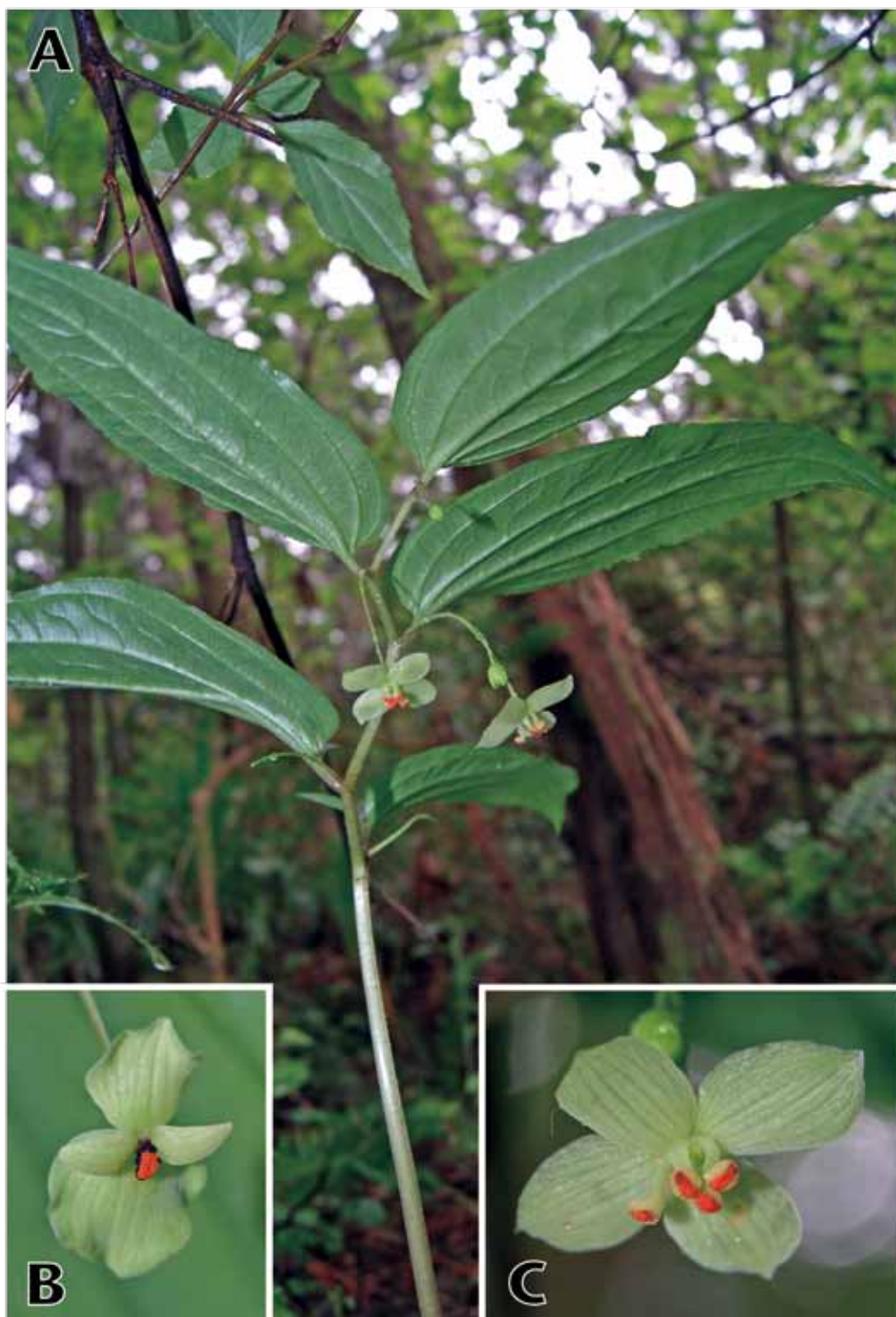


Fig. 2. *Croomia kinoshitae* Kadota (A, C) and *C. heterosepala* (Baker) Okuyama (B). A. Habit of *C. kinoshitae*. B. Flower of *C. heterosepala*. C. Flower of *C. kinoshitae*. A, C. Hidaka-mura, Kochi Pref., 3 May 2011. B. Kami-shi, Kochi Pref., 7 May 2011. Courtesy of Dr. Nobuyuki Tanaka.

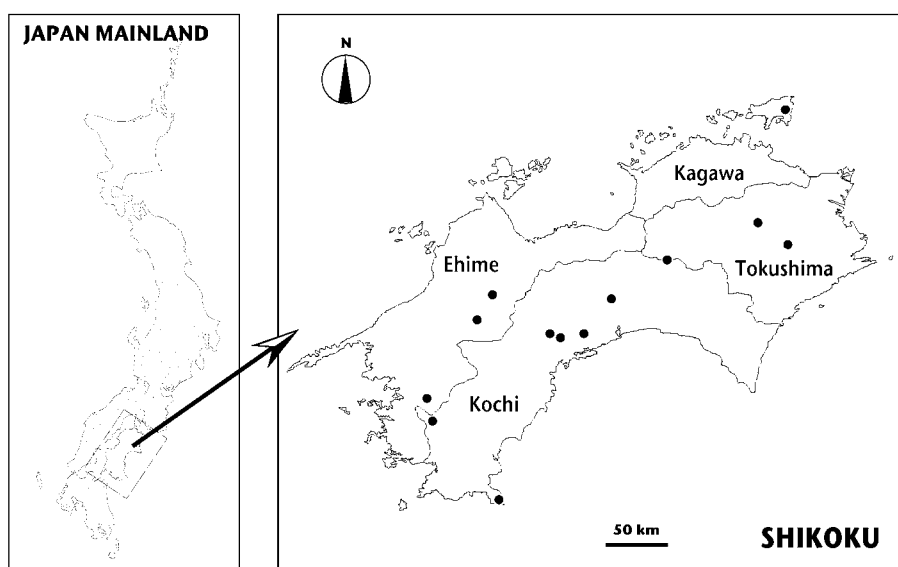


Fig. 3. Distribution of *Croomia kinoshitae* Kadota.

Type: JAPAN. Shikoku. Tokushima Pref., Miyoshi-shi, Yamashiro-cho, Mt. Kurotaki-yama [$33^{\circ}51'08.4''\text{N}$ $133^{\circ}43'23.2''\text{E}$], alt. 500 m, 7 July 2010, fl., S. Kinoshita 17067 (TNS 1113234–holotype; Fig. 1); *ibid.*, S. Kinoshita 17068 (TNS 1113235–isotype).

Herbaceous perennials, 40–58 cm tall. Rhizome subterranean, horizontal, up to 5 cm long, necklace-shaped; internodes 3–5 (–18) mm long; roots thread-like, carnose, 2–2.5 mm in diameter, fasciculate. Stem erect in the lower half and declining in the upper half, simple, purplish in the lower 2/3 of the stem, glabrous, shallowly fulcate. Basal leaves yellowish-white, ca. 1 cm long, ovato-oblong, membranous, scaly. Lower cauline leaves pale yellowish-white and semi-transparent, membranous, scaly, vaginate. Upper cauline leaves 4–7, situated in the upper part of the stem, alternate; blades membranous but slightly thickened along the margin, light green above, glaucous and lustrous beneath, ovato-oblong to narrowly ovate, 7–14 cm long, 2.5–7.5 cm wide, 5–7-veined, acuminate at apex, truncate to shallowly cordate or sometimes cuneate at base; margin serrulate;

petioles 1.5–2.5 cm long, glabrous, amplexicaul, slightly auriculate, shortly decurrent. Flowers May to July, 8–16 mm in diameter, axillary, 2–3 in a loose cyme or sometimes solitary, bracteate; peduncles 3–5 cm long, glabrous, articulate, thickened at base; bracts minute and membranous, 1–2 mm long, lanceolate. Tepals (perianth-segments) 4, cruciate, subequal in shape and size, yellowish-green, broadly ovate, 5–8 mm long, 3–5 mm wide, cuspidate at apex, patent, papillate, persistent during the fruiting time. Stamens 4; filaments yellowish-green, cylindrical, 1 mm long, ca. 1 mm in diameter, slightly incurved, papillate; anthers oblong, 1.5 mm long, basifixed. Styles minute. Capsules appressed-globular, ca. 1.2 cm in diameter; beaks ca. 5 mm long.

Japanese name: Shikoku-nabewari (nov.).

新和名: シコクナベワリ

Distribution: Shikoku (Fig. 3). Endemic to Japan.

Additional specimens examined: JAPAN, Shikoku. **Kagawa** Pref., Shōdzu-gun, Uchinomi-cho [currently Shōdoshima-cho], Shōdo-shima Island, Mt. Hoshigajō-yama, alt. ca. 800 m, 18 June 1990, fl. & y. fr., S. Mitani 4532–4533 (TNS 1144630–1144631). **Tokushima** Pref., Oe-gun, Mt. Kōtsu-yama, 4 May 1905, fl. & fr., J. Nikai

1436 (TNS 49309). Naga-gun, Kizawa-mura, Mt. Kumosô-yama, 30 May 1993, fl., G. Murata 70593 (TNS 633050). **Ehime** Pref., Uwajima-shi, Tokoname-keikoku, 33°00'N 132°50'E, alt. 600–900 m, 18 April 2002, fl., T. Kobayashi 36882 (TNS 727075). Kita-gun, Uchiko-cho, Mt. Odamiyama, 26 May 1884, fl., no collector's name (TNS 3709). Kami-Ukena-gun, in the vicinity of Kuma, no date, y. fr., no collector's name (TNS 3708). **Kochi** Pref., Kochi-shi, Tosayama, Takakawa, Mt. Kuishi-yama, alt. ca. 1000 m, 12 June 2011, Y. Kadota 116011 (TNS). Agawa-gun, Niyodogawa-cho, Nanogawa, 7 May 1896, fl., K. Watanabe s.n. (TNS 62761). Takaoka-gun, Ochi-cho, Mt. Yokogura-yama, 1967, fl., J. Haginiwa 19421, 46378 (TNS 969421, 996378); Mt. Yokogura-yama, 8 Aug. 1965, fr., J. Haginiwa 14918 (TNS 969418); Mt. Yokogura-yama, 11 May 1967, fl., J. Haginiwa 14919–19420 (TNS 969419–969420); Mt. Yokogura-yama [33°32'N 133°12'E], 10 June 2011, Y. Kadota 116001 (TNS 01137898). Hidaka-mura, Shimobun, Nakamura, a serpentine area, 3 May 2011, fl., N. Tanaka 11-006 (TNS 1144632–1144633). Shimanto-shi, Kuroson, 3 Oct. 1959, fr., S. Okuyama 15893 (TNS 276994). Tosa-Shimizu-shi, Ashizuri-misaki Cape, 2 Aug. 1957, fr., H. Ito s.n. (TNS 1062914).

Note: *Croomia kinoshitae* differs from *C. heterosepala* (Baker) Okuyama in having tepals subequal in shape and size with shortly cuspidate apices, yellowish-green, thinner, slightly incurved staminal filaments and irregularly serrulate leaf margin.

Croomia kinoshitae grows in similar environmental conditions to the other species of the genus, i.e., under warm-temperate, laurel forests and *Cryptomeria japonica* plantations.

Key to the species of *Croomia*

- A. Tepals orbicular to broadly elliptic or ovate, flat or slightly incurved along margin
 - B. Tepals heteromorphic, leaves not lustrous beneath, staminal filaments thick, dark purplish *C. heterosepala*
 - B. Tepals monomorphic, leaves lustrous beneath, staminal filaments thin, yellowish-green *C. kinoshitae*
- A. Tepals narrowly triangular-ovate, monomorphic, more or less recurved along margin, leaves lustrous beneath
 - C. Flowers yellowish-green, 2–4 in a cyme or rarely solitary, if cymose, peduncles

non-articulate, bracts lanceolate, 2–3 mm long

D. Leaves cuneate to shallowly cordate at base, cymes longer than the petioles, internodes of rhizome less than 1 cm long *C. japonica*

D. Leaves cordate at base, cymes shorter than or equal to the petioles in length, internodes of rhizome longer than 2.6 cm *C. pauciflora*

C. Flowers dark purplish brown at least in the lower half, solitary, peduncles articulate, bracts less than 1.5 mm long or absent

E. Flower small, 4.5 mm across, dark purplish brown, tepals shorter than 2 mm, subequal in length, filaments thick and short, 1–1.5 mm long, bracts usually absent, if present, 0.5 mm long, cauline leaves 7–11, membranous, narrowly ovato-oblong, with 3–5 veins *C. saitoana*

E. Flower large, ca. 1 cm across yellowish-green or dark purplish-brown only in the lower half, tepals longer than 6 mm, inner slightly shorter than the outer, filaments 3–4 mm long, bracts linear to spatulate, 1–5 mm long, cauline leaves 4–6, slightly fleshy, cordate to narrowly cordate at base, with 5–7 veins *C. hyugaensis*

I wish to show my cordial thanks to Mr. Satoru Kinoshita, Naruto-shi, Tokushima Pref., for his gifts of specimens and images of *Croomia* plants from Tokushima Pref., to Dr. Nobuyuki Tanaka, Department of Botany, Kochi Prefectural Botanical Garden, for his sending materials and images of *Croomia* plants from Kochi Pref., to Mr. Susumu Mitani, Takamatsushi, Kagawa Pref., for his sending of *Croomia* specimens from Shôdo-shima Island, and to Ms. Yukie Uchikune for her information on *Croomia* plants in Mt. Yokogura-yama, Kochi Pref.

Literature cited

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門田裕一：四国産ナベワリ属（ビャクブ科）の 1 新種，シコクナベワリ

四国からナベワリ属（ビャクブ科）の 1 新種，シコクナベワリ *Croomia kinoshitae* Kadota を記載した。シコクナベワリはナベワリ *C. heterosepala* (Baker) Okuyama から，①花被片がほぼ同形・同大で，先端は微突端となること，②花糸が黄緑色で細長く，わずかに湾曲し，③葉の縁に不規則な細かい鋸歯があることで区

別できる。シコクナベワリはナベワリ属の 6 番目の種で，四国の固有種である。四国ではシコクナベワリはナベワリと同じような環境に生えるが，これまでに知られている限りでは，両種が同所的に生育することはない。ナベワリ属の既知の 6 種について検索表を本文中に示した。

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